

RECEIVED

MAY 16 2012

SUPERFUND DIVISION

Ambient Air Monitoring Report

***Rivermines
Park Hills, Missouri***

***Prepared for
The Doe Run Company***

February 2012

40389791



Superfund



Ambient Air Monitoring Report

***Rivermines
Park Hills, Missouri***

***Prepared for
The Doe Run Company***

February 2012

RECEIVED

MAY 16 2012

SUPERFUND DIVISION



**1001 Diamond Ridge Suite 1100
Jefferson City, MO 65109
Phone (573) 638-5000
Fax (573) 638-5001**



May 11, 2012

Mr Mark Nations
The Doe Run Company
P O Box 1633
Desloge, Missouri 63601

Re: Ambient Air Monitoring Report – Rivermines Site

Dear Mr Nations

Please find attached the February 2012 “*Ambient Air Monitoring Report*” for The Doe Run Company at the Rivermines Sites, located near Park Hills, Missouri

This report will include the following

- **Glossary of Terms** – Listing of the abbreviations used for each parameter and unit
- **Ambient Air Quality Standards** – Lists the maximum allowable concentrations for the measured parameters
- **TSP, Lead & PM₁₀ Particulate Summaries** – Includes the averages of each monitored parameter, which relates to the federal standards
- **Particulate and Lead Analysis Spreadsheets.**
- **Lab Results (lead & cadmium)** – Lab reports from Inovatia Laboratories, LLC
- **Meteorological Data Printouts** – This supplies printouts of each parameter

Barr Engineering Company offers this report as an independent laboratory This includes the weighing of filters, obtaining lead and cadmium analysis, compiling the data, and preparing the report No interpretation of the data or analysis of the results is implied or intended Should you have any questions regarding this report, please call

Respectfully,

A handwritten signature in black ink, appearing to read "Richard J. Campbell".

Richard J Campbell, PE
Chemical Engineer
Senior Environmental Consultant

c Kathy Rangen
Jason Gunter
Ty Morris

GLOSSARY OF TERMS

| | |
|--------------------------|---|
| $\mu\text{g}/\text{m}^3$ | Micrograms per Cubic Meter |
| mph | Miles per Hour |
| Wind Direction | Degrees from True North |
| TSP | Total Suspended Particulate |
| PM_{10} | Particulate Matter - 10 Microns or Less |
| mmHg | Millimeters of Mercury |

NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)

| | | | |
|---------------------------------------|-------------------------|-----------------|-------------------------------|
| PM_{10} – Particulate Matter | 24-Hour* | Annual Maximum | $150 \mu\text{g}/\text{m}^3$ |
| Lead | Calendar Quarter | Arithmetic Mean | $1.5 \mu\text{g}/\text{m}^3$ |
| Lead | Rolling 3-Month Average | Arithmetic Mean | $0.15 \mu\text{g}/\text{m}^3$ |

TSP (Total Suspended Particulate) – There are no Federal Standards that apply solely for TSP

*This standard must be exceeded more than once a year to constitute a violation



TSP and Lead Concentration Summary

Rivermines
Park Hills, Missouri

2012

| Date | TSP Big River #4 ($\mu\text{g}/\text{m}^3$) | TSP South #1 ($\mu\text{g}/\text{m}^3$) | TSP North #2 ($\mu\text{g}/\text{m}^3$) | TSP East #3 ($\mu\text{g}/\text{m}^3$) | LEAD Big River #4 ($\mu\text{g}/\text{m}^3$) | LEAD South #1 ($\mu\text{g}/\text{m}^3$) | LEAD North #2 ($\mu\text{g}/\text{m}^3$) | LEAD East #3 ($\mu\text{g}/\text{m}^3$) |
|--------------------------------|---|---|---|--|---|--|--|---|
| 2/1/12 | 17 | 39 | 15 | 17 | 0.024 | 0.116 | 0.029 | 0.019 |
| 2/2/12 | 32 | 24 | 17 | 23 | 0.037 | 0.034 | 0.012 | 0.036 |
| 2/3/12 | 6 | 5 | 4 | 5 | 0.000 | 0.006 | 0.000 | 0.000 |
| 2/6/12 | 9 | 20 | 6 | 13 | 0.008 | 0.018 | 0.011 | 0.015 |
| 2/7/12 | 13 | 25 | 12 | 16 | 0.012 | 0.045 | 0.010 | 0.014 |
| 2/8/12 | 7 | 14 | 7 | 9 | 0.000 | 0.029 | 0.000 | 0.006 |
| 2/9/12 | 8 | 16 | 8 | 10 | 0.007 | 0.009 | 0.008 | 0.008 |
| 2/10/12 | 11 | 14 | 10 | 11 | 0.009 | 0.015 | 0.006 | 0.010 |
| 2/13/12 | 3 | 9 | 4 | 5 | 0.013 | 0.011 | 0.017 | 0.009 |
| 2/14/12 | 8 | 12 | 6 | 10 | 0.011 | 0.010 | 0.008 | 0.013 |
| 2/15/12 | 5 | 6 | 3 | 4 | 0.060 | 0.000 | 0.000 | 0.000 |
| 2/16/12 | 22 | 61 | 20 | 27 | 0.008 | 0.046 | 0.010 | 0.016 |
| 2/17/12 | 22 | 21 | 14 | 18 | 0.019 | 0.017 | 0.017 | 0.015 |
| 2/20/12 | 10 | 11 | 11 | 11 | 0.000 | 0.000 | 0.008 | 0.006 |
| 2/21/12 | 9 | 11 | 17 | 14 | 0.013 | 0.011 | 0.028 | 0.020 |
| 2/22/12 | 23 | 25 | 34 | 29 | 0.008 | 0.009 | 0.016 | 0.026 |
| 2/23/12 | 35 | 51 | 28 | 34 | 0.034 | 0.038 | 0.015 | 0.129 |
| 2/24/12 | 26 | 37 | 10 | 23 | 0.038 | 0.038 | 0.012 | 0.068 |
| 2/27/12 | 31 | 32 | 26 | 29 | 0.019 | 0.023 | 0.008 | 0.037 |
| 2/28/12 | 73 | INVALID | 54 | 83 | 0.013 | INVALID | 0.014 | 0.049 |
| 2/29/12 | 38 | 37 | 39 | 33 | 0.017 | 0.014 | 0.016 | 0.022 |
| Monthly Average | 19 | 24 | 16 | 20 | 0.017 | 0.024 | 0.012 | 0.025 |
| Jan 2012 | | | | | 0.018 | 0.024 | 0.021 | 0.016 |
| Dec 2011 | | | | | 0.008 | 0.038 | 0.009 | 0.010 |
| Rolling 3-month Average | | | | | 0.01 | 0.03 | 0.01 | 0.02 |
| | | | | | 3-month Average Lead NAAQS $\mu\text{g}/\text{m}^3$ | | 0.15 | |

Please see the particulate analysis sheets for explanations of missing or invalid data.

Note: A summary of the Big River #4 sampler data is also included, because it was part of the QA plan.

Particulate and Lead Analysis



TSP and Lead Analysis

The Doe Run Company

| SAMPLER ID P4557 | | Big River Site #4- Primary | | | | | | | | | | | |
|------------------|-----------|----------------------------|-------------------|-------------------|----------------------|---------------------|---------------------------------------|------------------------------------|--------------------------------------|-----------------|---|---|------------------------|
| Sample Date 2012 | Filter ID | TSP Filter Net Wt. g | Lead Total Wt. µg | T _{av} C | P _{av} mmHg | P _i mmHg | Ratio P _i /P _{av} | Q _s m ³ /min | Q _{std} m ³ /min | Elapsed Time hr | Sample Volume V _{std} m ³ | Mass Concentrations TSP µg/m ³ | Lead µg/m ³ |
| 2/1/2012 | 8462321 | 0.0311 | 42 | 11 | 746.8 | 34.5 | 0.954 | 1.223 | 1.290 | 23.70 | 1791 | 17 | 0.024 |
| 2/2/2012 | 8462312 | 0.0572 | 67 | 8 | 751.0 | 34.0 | 0.955 | 1.217 | 1.277 | 23.66 | 1813 | 32 | 0.037 |
| 2/3/2012 | 8462303 | 0.0112 | < 10 | 8 | 750.0 | 34.0 | 0.955 | 1.217 | 1.275 | 23.77 | 1819 | 6 | 0.000 |
| 2/6/2012 | 8545394 | 0.0189 | 14 | 2 | 750.9 | 33.3 | 0.956 | 1.208 | 1.292 | 23.59 | 1829 | 9 | 0.008 |
| 2/7/2012 | 8545384 | 0.0244 | 22 | 3 | 751.2 | 33.4 | 0.956 | 1.209 | 1.291 | 23.70 | 1836 | 13 | 0.012 |
| 2/8/2012 | 8545375 | 0.0133 | < 10 | 1 | 754.6 | 33.1 | 0.956 | 1.205 | 1.303 | 23.76 | 1858 | 7 | 0.000 |
| 2/9/2012 | 8545385 | 0.0150 | 14 | 1 | 752.3 | 33.2 | 0.956 | 1.206 | 1.298 | 23.72 | 1847 | 8 | 0.007 |
| 2/10/2012 | 8545357 | 0.0205 | 17 | 1 | 747.6 | 33.1 | 0.956 | 1.205 | 1.290 | 23.76 | 1840 | 11 | 0.009 |
| 2/13/2012 | 8545347 | 0.0084 | 24 | -1 | 746.7 | 32.9 | 0.956 | 1.201 | 1.295 | 23.70 | 1841 | 3 | 0.013 |
| 2/14/2012 | 8545338 | 0.0145 | 20 | 3 | 743.5 | 33.4 | 0.955 | 1.209 | 1.278 | 23.68 | 1813 | 8 | 0.011 |
| 2/15/2012 | 8545329 | 0.0085 | 110 | 5 | 745.1 | 33.8 | 0.955 | 1.213 | 1.272 | 23.80 | 1817 | 5 | 0.060 |
| 2/16/2012 | 8545319 | 0.0404 | 14 | 6 | 748.6 | 33.8 | 0.955 | 1.214 | 1.278 | 23.74 | 1821 | 22 | 0.008 |
| 2/17/2012 | 8545309 | 0.0395 | 35 | 4 | 748.8 | 33.6 | 0.955 | 1.211 | 1.283 | 23.75 | 1829 | 22 | 0.019 |
| 2/20/2012 | 8546200 | 0.0189 | < 10 | 3 | 746.9 | 33.5 | 0.955 | 1.209 | 1.282 | 23.69 | 1823 | 10 | 0.000 |
| 2/21/2012 | 8546190 | 0.0162 | 24 | 8 | 741.0 | 34.1 | 0.954 | 1.217 | 1.258 | 23.75 | 1793 | 9 | 0.013 |
| 2/22/2012 | 8546182 | 0.0406 | 14 | 8 | 734.8 | 34.1 | 0.954 | 1.217 | 1.247 | 23.74 | 1776 | 23 | 0.008 |
| 2/23/2012 | 8546171 | 0.0608 | 59 | 13 | 729.5 | 34.7 | 0.952 | 1.225 | 1.225 | 23.58 | 1733 | 35 | 0.034 |
| 2/24/2012 | 8546163 | 0.0487 | 70 | 4 | 743.2 | 33.6 | 0.955 | 1.211 | 1.272 | 23.78 | 1814 | 26 | 0.038 |
| 2/27/2012 | 8546152 | 0.0562 | 34 | 9 | 753.3 | 34.2 | 0.955 | 1.220 | 1.277 | 23.71 | 1817 | 31 | 0.019 |
| 2/28/2012 | 8546143 | 0.1298 | 23 | 10 | 747.9 | 34.3 | 0.954 | 1.221 | 1.285 | 23.57 | 1789 | 73 | 0.013 |
| 2/29/2012 | 8546134 | 0.0681 | 29 | 15 | 738.5 | 34.9 | 0.953 | 1.229 | 1.235 | 23.65 | 1752 | 38 | 0.017 |

| Data Captured | TSP | Lead |
|------------------------|------|------|
| Valid Samples: | 21 | 21 |
| Scheduled Samples: | 21 | 21 |
| Percent Data Captured: | 100% | 100% |

| | | |
|---------------------|----|-------|
| Monthly Average: | 19 | 0.017 |
| Standard Deviation: | 16 | 0.015 |
| Maximum: | 73 | 0.060 |
| Minimum: | 3 | 0.000 |

NOTES

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celsius
P_{av} = average station pressure in millimeters of mercury
P_i = (((Temp in °Kelvin * Temp Slope) + Temp Int.)) * 1.868
P_i = ((Temp in °Kelvin * 0.0084) + (-0.4213)) * 1.868
P_i/P_{av} = pressure ratio of P_i and P_{av} = 1 - P_i/P_{av}

Q_s = look up table volumetric flow rate
Q_{std} = total sample volumetric flow rate corrected to standard conditions
V_{std} = total sample volume corrected to standard conditions
TSP = mass concentration in µg/std m³
Lead = mass concentration in µg/std m³



TSP and Lead Analysis

The Doe Run Company

| SAMPLER ID P2940 | | | | Elvins Riverlines Site #1 by Office | | | | | | | | | |
|------------------|-----------|----------------------|-------------------|-------------------------------------|----------------------|---------------------|--------------------------------------|------------------------------------|--------------------------------------|-----------------|---|---|------------------------|
| Sample Date 2012 | Filter ID | TSP Filter Net Wt. g | Lead Total Wt. µg | T _{av} C | P _{av} mmHg | P _i mmHg | Ratio P _i /P _a | Q _a m ³ /min | Q _{std} m ³ /min | Elapsed Time hr | Sample Volume V _{std} m ³ | Mass Concentrations TSP µg/m ³ | Lead µg/m ³ |
| 2/1/2012 | 8462318 | 0.0713 | 210 | 11 | 746.8 | 34.5 | 0.954 | 1.229 | 1.265 | 23.88 | 1813 | 39 | 0.118 |
| 2/2/2012 | 8462309 | 0.0436 | 63 | 8 | 751.0 | 34.0 | 0.955 | 1.223 | 1.283 | 23.88 | 1838 | 24 | 0.034 |
| 2/3/2012 | 8545400 | 0.0099 | 10 | 8 | 750.0 | 34.0 | 0.955 | 1.223 | 1.281 | 23.80 | 1838 | 5 | 0.008 |
| 2/6/2012 | 8545391 | 0.0370 | 34 | 2 | 750.9 | 33.3 | 0.956 | 1.213 | 1.267 | 23.77 | 1850 | 20 | 0.018 |
| 2/7/2012 | 8545381 | 0.0468 | 84 | 3 | 751.2 | 33.4 | 0.958 | 1.214 | 1.267 | 23.82 | 1853 | 25 | 0.045 |
| 2/8/2012 | 8545372 | 0.0268 | 54 | 1 | 754.6 | 33.1 | 0.956 | 1.210 | 1.309 | 23.89 | 1876 | 14 | 0.029 |
| 2/9/2012 | 8545362 | 0.0303 | 17 | 1 | 752.3 | 33.2 | 0.956 | 1.211 | 1.304 | 23.88 | 1868 | 16 | 0.009 |
| 2/10/2012 | 8545354 | 0.0257 | 28 | 1 | 747.8 | 33.1 | 0.956 | 1.210 | 1.296 | 23.97 | 1864 | 14 | 0.015 |
| 2/13/2012 | 8545344 | 0.0175 | 20 | -1 | 746.7 | 32.9 | 0.956 | 1.206 | 1.300 | 23.64 | 1844 | 9 | 0.011 |
| 2/14/2012 | 8545335 | 0.0224 | 19 | 3 | 743.5 | 33.4 | 0.955 | 1.214 | 1.282 | 23.81 | 1831 | 12 | 0.010 |
| 2/15/2012 | 8545326 | 0.0109 | < 10 | 5 | 745.1 | 33.8 | 0.955 | 1.219 | 1.278 | 23.80 | 1825 | 6 | 0.000 |
| 2/16/2012 | 8545316 | 0.1121 | 84 | 6 | 748.6 | 33.8 | 0.955 | 1.218 | 1.284 | 23.73 | 1829 | 61 | 0.048 |
| 2/17/2012 | 8545308 | 0.0383 | 31 | 4 | 748.8 | 33.6 | 0.955 | 1.218 | 1.289 | 23.80 | 1840 | 21 | 0.017 |
| 2/20/2012 | 8546197 | 0.0206 | < 10 | 3 | 748.9 | 33.5 | 0.955 | 1.214 | 1.288 | 23.71 | 1832 | 11 | 0.000 |
| 2/21/2012 | 8546187 | 0.0202 | 20 | 8 | 741.0 | 34.1 | 0.954 | 1.223 | 1.264 | 23.78 | 1804 | 11 | 0.011 |
| 2/22/2012 | 8546179 | 0.0442 | 15 | 8 | 734.8 | 34.1 | 0.954 | 1.223 | 1.253 | 23.68 | 1780 | 25 | 0.009 |
| 2/23/2012 | 8546168 | 0.0896 | 68 | 13 | 729.5 | 34.7 | 0.952 | 1.230 | 1.230 | 23.91 | 1785 | 51 | 0.038 |
| 2/24/2012 | 8546180 | 0.0689 | 70 | 4 | 743.2 | 33.6 | 0.955 | 1.217 | 1.277 | 23.84 | 1827 | 37 | 0.038 |
| 2/27/2012 | 8548149 | 0.0575 | 41 | 9 | 753.3 | 34.2 | 0.955 | 1.226 | 1.283 | 23.33 | 1796 | 32 | 0.023 |
| 2/28/2012 | 8548140 | 0.0394 | 13 | 10 | 747.9 | 34.3 | 0.954 | 1.227 | 1.271 | 17.00 | 1298 | INVALID | INVALID |
| 2/29/2012 | 8548131 | 0.0654 | 28 | 15 | 738.5 | 34.9 | 0.953 | 1.235 | 1.241 | 23.79 | 1771 | 37 | 0.014 |

| | | |
|------------------------|------------|-------------|
| Data Captured | TSP | Lead |
| Valid Samples: | 20 | 20 |
| Scheduled Samples: | 21 | 21 |
| Percent Data Captured: | 95% | 95% |

| | | |
|----------------------------|-----------|--------------|
| Monthly Average: | 24 | 0.024 |
| Standard Deviation: | 15 | 0.026 |
| Maximum: | 61 | 0.116 |
| Minimum: | 5 | 0.000 |

NOTES

2/28/2012 - INVALID - Mechanical Failure

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celsius
P_{av} = average station pressure in millimeters of mercury
P_i = ((Temp in °Kelvin * Temp Slope) + Temp Int.) * 1.868
P_i = ((Temp in °Kelvin * 0.0684) + (-0.4213)) * 1.868
P_i/P_a = pressure ratio of P_i and P_{av} = 1 - P_{av}

Q_a = look up table volumetric flow rate
Q_{std} = total sample volumetric flow rate corrected to standard conditions
V_{std} = total sample volume corrected to standard conditions
TSP = mass concentration in µg/std m³
Lead = mass concentration in µg/std m³



TSP and Lead Analysis

The Doe Run Company

| SAMPLER ID P2941 | | Elvins Rivermines Site #2 Wood & Barton | | | | | | | | | | | |
|---------------------|--------------|---|----------------------------|----------------------|-------------------------|------------------------|--|---------------------------------------|---|-----------------------|--|---|---------------------------|
| Sample Date 2012 | Filter ID | TSP Filter Net Wt. g | Lead Total Wt. µg | T _{av} C | P _{av} mmHg | P _i mmHg | Ratio P _i /P _{av} | Q _s m ³ /min | Q _{std} m ³ /min | Elapsed Time hr | Sample Volume V _{std} m ³ | Mass Concentrations TSP µg/m ³ | Lead µg/m ³ |
| 2/1/2012 | 8482320 | 0.0283 | 51 | 11 | 746.8 | 34.5 | 0.954 | 1.212 | 1.248 | 23.81 | 1783 | 15 | 0.029 |
| 2/2/2012 | 8482311 | 0.0314 | 21 | 8 | 751.0 | 34.0 | 0.955 | 1.207 | 1.266 | 23.89 | 1769 | 17 | 0.012 |
| 2/3/2012 | 8482302 | 0.0085 | < 10 | 8 | 750.0 | 34.0 | 0.955 | 1.207 | 1.264 | 23.72 | 1799 | 4 | 0.000 |
| 2/6/2012 | 8545383 | 0.0117 | 20 | 2 | 750.9 | 33.3 | 0.956 | 1.197 | 1.280 | 23.66 | 1817 | 6 | 0.011 |
| 2/7/2012 | 8545383 | 0.0210 | 18 | 3 | 751.2 | 33.4 | 0.956 | 1.198 | 1.280 | 23.78 | 1826 | 12 | 0.010 |
| 2/8/2012 | 8545374 | 0.0136 | < 10 | 1 | 754.6 | 33.1 | 0.956 | 1.195 | 1.292 | 23.74 | 1840 | 7 | 0.000 |
| 2/9/2012 | 8545364 | 0.0143 | 15 | 1 | 752.3 | 33.2 | 0.956 | 1.195 | 1.287 | 23.68 | 1828 | 8 | 0.008 |
| 2/10/2012 | 8545358 | 0.0184 | 11 | 1 | 747.8 | 33.1 | 0.956 | 1.194 | 1.279 | 23.73 | 1821 | 10 | 0.006 |
| 2/13/2012 | 8545346 | 0.0071 | 32 | -1 | 746.7 | 32.9 | 0.956 | 1.191 | 1.283 | 23.71 | 1826 | 4 | 0.017 |
| 2/14/2012 | 8545337 | 0.0115 | 15 | 3 | 743.5 | 33.4 | 0.955 | 1.198 | 1.265 | 23.73 | 1801 | 6 | 0.008 |
| 2/15/2012 | 8545328 | 0.0053 | < 10 | 5 | 745.1 | 33.8 | 0.955 | 1.203 | 1.261 | 23.67 | 1791 | 3 | 0.000 |
| 2/16/2012 | 8545318 | 0.0380 | 19 | 6 | 748.6 | 33.8 | 0.955 | 1.203 | 1.267 | 23.73 | 1804 | 20 | 0.010 |
| 2/17/2012 | 8545308 | 0.0252 | 32 | 4 | 748.8 | 33.6 | 0.955 | 1.200 | 1.272 | 23.65 | 1805 | 14 | 0.017 |
| 2/20/2012 | 8546199 | 0.0191 | 15 | 3 | 746.9 | 33.5 | 0.955 | 1.198 | 1.271 | 23.70 | 1807 | 11 | 0.008 |
| 2/21/2012 | 8546189 | 0.0294 | 50 | 8 | 741.0 | 34.1 | 0.954 | 1.207 | 1.247 | 23.71 | 1775 | 17 | 0.028 |
| 2/22/2012 | 8546181 | 0.0601 | 28 | 8 | 734.8 | 34.1 | 0.954 | 1.206 | 1.238 | 23.76 | 1762 | 34 | 0.016 |
| 2/23/2012 | 8546170 | 0.0477 | 26 | 13 | 729.5 | 34.7 | 0.952 | 1.214 | 1.214 | 23.72 | 1728 | 28 | 0.015 |
| 2/24/2012 | 8546162 | 0.0187 | 22 | 4 | 743.2 | 33.6 | 0.955 | 1.201 | 1.280 | 23.65 | 1788 | 10 | 0.012 |
| 2/27/2012 | 8546151 | 0.0482 | 14 | 9 | 753.3 | 34.2 | 0.955 | 1.209 | 1.266 | 23.77 | 1805 | 28 | 0.008 |
| 2/28/2012 | 8546142 | 0.0972 | 26 | 10 | 747.9 | 34.3 | 0.954 | 1.210 | 1.254 | 23.77 | 1788 | 54 | 0.014 |
| 2/29/2012 | 8546133 | 0.0684 | 27 | 15 | 738.5 | 34.9 | 0.953 | 1.218 | 1.224 | 23.69 | 1740 | 39 | 0.016 |

| Data Captured | TSP | Lead |
|------------------------|------|------|
| Valid Samples: | 21 | 21 |
| Scheduled Samples: | 21 | 21 |
| Percent Data Captured: | 100% | 100% |

| Monthly Average: | 16 | 0.012 |
|---------------------|----|-------|
| Standard Deviation: | 13 | 0.008 |
| Maximum: | 54 | 0.029 |
| Minimum: | 3 | 0.000 |

NOTES

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celsius
P_{av} = average station pressure in millimeters of mercury
P_i = (((Temp in °Kelvin * Temp Slope) + Temp Int.)) * 1.868
P_i = ((Temp in °Kelvin * 0.0684) + (-0.4213)) * 1.868
P_i/P_{av} = pressure ratio of P_i and P_{av} = 1 - P_i/P_{av}

Q_s = look up table volumetric flow rate
Q_{std} = total sample volumetric flow rate corrected to standard conditions
V_{std} = total sample volume corrected to standard conditions
TSP = mass concentration in µg/std m³
Lead = mass concentration in µg/std m³



TSP and Lead Analysis

The Doe Run Company

| SAMPLER ID P4475 | | | | Elvins Rivermines Site #3 WTP | | | | | | | | | |
|---------------------|--------------|-------------------------------|----------------------------|-------------------------------|-------------------------|------------------------|--|---------------------------------------|---|-----------------------|--|---|-------|
| Sample Date 2012 | Filter ID | TSP Filter Net Wt. g | Lead Total Wt. µg | T _{av} C | P _{av} mmHg | P _f mmHg | Ratio P _f /P _{av} | Q _a m ³ /min | Q _{std} m ³ /min | Elapsed Time hr | Sample Volume V _{std} m ³ | Mass Concentrations TSP µg/m ³ Lead µg/m ³ | |
| 2/1/2012 | 8462319 | 0.0300 | 34 | 11 | 746.8 | 34.5 | 0.954 | 1.210 | 1.246 | 23.76 | 1776 | 17 | 0.019 |
| 2/2/2012 | 8462310 | 0.0419 | 64 | 8 | 751.0 | 34.0 | 0.955 | 1.204 | 1.263 | 23.74 | 1799 | 23 | 0.036 |
| 2/3/2012 | 8462301 | 0.0084 | < 10 | 8 | 750.0 | 34.0 | 0.955 | 1.204 | 1.261 | 23.76 | 1798 | 5 | 0.000 |
| 2/6/2012 | 8545392 | 0.0233 | 27 | 2 | 750.9 | 33.3 | 0.956 | 1.195 | 1.278 | 23.73 | 1819 | 13 | 0.015 |
| 2/7/2012 | 8545382 | 0.0290 | 25 | 3 | 751.2 | 33.4 | 0.956 | 1.195 | 1.277 | 23.64 | 1811 | 16 | 0.014 |
| 2/8/2012 | 8545373 | 0.0185 | 12 | 1 | 754.6 | 33.1 | 0.956 | 1.192 | 1.269 | 23.67 | 1830 | 9 | 0.008 |
| 2/9/2012 | 8545363 | 0.0178 | 14 | 1 | 752.3 | 33.2 | 0.956 | 1.192 | 1.264 | 23.73 | 1828 | 10 | 0.008 |
| 2/10/2012 | 8545355 | 0.0191 | 18 | 1 | 747.6 | 33.1 | 0.956 | 1.192 | 1.276 | 23.78 | 1821 | 11 | 0.010 |
| 2/13/2012 | 8545345 | 0.0087 | 16 | -1 | 746.7 | 32.9 | 0.956 | 1.188 | 1.280 | 23.74 | 1823 | 5 | 0.009 |
| 2/14/2012 | 8545336 | 0.0176 | 23 | 3 | 743.5 | 33.4 | 0.955 | 1.195 | 1.262 | 23.70 | 1795 | 10 | 0.013 |
| 2/15/2012 | 8545327 | 0.0068 | < 10 | 5 | 745.1 | 33.8 | 0.955 | 1.200 | 1.258 | 23.68 | 1788 | 4 | 0.000 |
| 2/16/2012 | 8545317 | 0.0484 | 28 | 6 | 748.6 | 33.8 | 0.955 | 1.200 | 1.264 | 23.76 | 1802 | 27 | 0.016 |
| 2/17/2012 | 8545307 | 0.0332 | 27 | 4 | 748.6 | 33.6 | 0.955 | 1.198 | 1.269 | 23.76 | 1809 | 18 | 0.015 |
| 2/20/2012 | 8546198 | 0.0205 | 10 | 3 | 748.9 | 33.5 | 0.955 | 1.196 | 1.268 | 23.77 | 1808 | 11 | 0.006 |
| 2/21/2012 | 8546188 | 0.0248 | 36 | 8 | 741.0 | 34.1 | 0.954 | 1.204 | 1.244 | 23.72 | 1771 | 14 | 0.020 |
| 2/22/2012 | 8546180 | 0.0500 | 46 | 8 | 734.8 | 34.1 | 0.954 | 1.203 | 1.233 | 23.64 | 1749 | 29 | 0.026 |
| 2/23/2012 | 8546169 | 0.0582 | 222 | 13 | 729.5 | 34.7 | 0.952 | 1.211 | 1.211 | 23.70 | 1722 | 34 | 0.129 |
| 2/24/2012 | 8546161 | 0.0404 | 122 | 4 | 743.2 | 33.6 | 0.955 | 1.198 | 1.258 | 23.72 | 1790 | 23 | 0.068 |
| 2/27/2012 | 8546150 | 0.0512 | 66 | 9 | 753.3 | 34.2 | 0.955 | 1.207 | 1.263 | 23.70 | 1796 | 29 | 0.037 |
| 2/28/2012 | 8546141 | 0.1476 | 87 | 10 | 747.9 | 34.3 | 0.954 | 1.208 | 1.251 | 23.68 | 1778 | 83 | 0.049 |
| 2/29/2012 | 8546132 | 0.0569 | 39 | 15 | 738.5 | 34.9 | 0.953 | 1.216 | 1.221 | 23.69 | 1736 | 33 | 0.022 |

| | | |
|------------------------|------|------|
| Data Captured | TSP | Lead |
| Valid Samples: | 21 | 21 |
| Scheduled Samples: | 21 | 21 |
| Percent Data Captured: | 100% | 100% |

| | | |
|---------------------|----|-------|
| Monthly Average: | 20 | 0.025 |
| Standard Deviation: | 17 | 0.029 |
| Maximum: | 83 | 0.129 |
| Minimum: | 4 | 0.000 |

NOTES

| Filter Blank QA | Nominal Airflow | Tolerance µg/m ³ |
|----------------------|---|-----------------------------|
| 2/29/2012 8546127 | -0.0020 25 750.0 36.2 0.952 1.206 1.236 | 24.00 1780 -1.1 |

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celsius
P_{av} = average station pressure in millimeters of mercury
P_f = (((Temp in °Kelvin * Temp Slope)) + Temp Int.)*1.868
P_i = ((Temp in °Kelvin * 0.0664) - (-0.4213))*1.868
P_f/P_{av} = pressure ratio of P_f and P_{av} = 1 - P/P_{av}

Q_a = look up table volumetric flow rate
Q_{std} = total sample volumetric flow rate corrected to standard conditions
V_{std} = total sample volume corrected to standard conditions
TSP = mass concentration in µg/std m³
Lead = mass concentration in µg/std m³



TSP and Lead Analysis

The Doe Run Company

SAMPLER ID P6609

Big River Site #4 - QA

| Sample Date 2012 | Filter ID | TSP Filter Net Wt. g | Lead Total Wt. µg | T _{av} C | P _{av} mmHg | P _f mmHg | Ratio P _f /P _{av} | Q _a m ³ /min | Q _{std} m ³ /min | Elapsed Time hr | Sample Volume V _{std} m ³ | Mass Concentrations TSP µg/m ³ | Lead µg/m ³ |
|---------------------|--------------|-------------------------------|----------------------------|----------------------|-------------------------|------------------------|--|---------------------------------------|---|-----------------------|--|---|---------------------------|
| 2/2/2012 | 8462322 | 0.0573 | 70 | 8 | 751.0 | 34.0 | 0.955 | 1.209 | 1.268 | 23.93 | 1820 | 31 | 0.038 |
| 2/7/2012 | 8545385 | 0.0259 | 23 | 3 | 751.2 | 33.4 | 0.956 | 1.200 | 1.282 | 23.89 | 1838 | 14 | 0.012 |
| 2/9/2012 | 8545368 | 0.0140 | 14 | 1 | 752.3 | 33.2 | 0.956 | 1.197 | 1.289 | 23.96 | 1853 | 8 | 0.008 |
| 2/14/2012 | 8545348 | 0.0133 | 19 | 3 | 743.5 | 33.4 | 0.955 | 1.200 | 1.267 | 23.88 | 1816 | 7 | 0.011 |
| 2/16/2012 | 8545320 | 0.0403 | 15 | 6 | 748.6 | 33.8 | 0.955 | 1.205 | 1.269 | 23.91 | 1821 | 22 | 0.008 |
| 2/21/2012 | 8545301 | 0.0163 | 26 | 8 | 741.0 | 34.1 | 0.954 | 1.209 | 1.249 | 23.98 | 1798 | 9 | 0.015 |
| 2/23/2012 | 8546172 | 0.0549 | 52 | 13 | 729.5 | 34.7 | 0.952 | 1.216 | 1.216 | 23.58 | 1720 | 32 | 0.030 |
| 2/28/2012 | 8546153 | 0.1203 | 26 | 10 | 747.9 | 34.3 | 0.954 | 1.213 | 1.256 | 23.79 | 1793 | 67 | 0.015 |

| | | |
|------------------------|------|------|
| Valid Samples: | 8 | 8 |
| Scheduled Samples: | 8 | 8 |
| Percent Data Captured: | 100% | 100% |

| | | |
|---------------------|----|-------|
| Monthly Average: | 24 | 0.017 |
| Standard Deviation: | 20 | 0.011 |
| Maximum: | 67 | 0.038 |
| Minimum: | 7 | 0.008 |

NOTES

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celcius
P_{av} = average station pressure in millimeters of mercury
P_f = (((Temp in °Kelvin * Temp Slope)+Temp Int.))*1.868
P_f = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868
P_f/P_{av} = pressure ratio of P_f and P_{av} = 1 - Pf/P_{av}

Q_a = look up table volumetric flow rate
Q_{std} = total sample volumetric flow rate corrected to standard conditions
V_{std} = total sample volume corrected to standard conditions
TSP = mass concentration in µg/std m³
Lead = mass concentration in µg/std m³

Lab Results (Lead and Cadmium)



120 East Davis Street
 P.O. Box 30
 Fayette, MO 65248-0030

Phone: (660) 248-1911
 Fax: (660) 248-1921
 http://www.inovatia.com

ANALYSIS REPORT

Client Information:

Barr Engineering Company
 7390 Ohms Lane
 Edina, MN 55439-2330

Chain of Custody No.: 12-0165
Date Received: 02/22/12
Analysis Method: 40 CFR §50
 Appendix G

Location Elvins River
 Mines

| Lab No. | Filter ID | Date | Site | µg Pb/Filter | µg Cd/Filter | Date - Analyst |
|---------|-----------|----------|-------------------|--------------|--------------|----------------|
| 120918 | 8462318 | 02/01/12 | #1 South - Office | 210 | < 10 | 03/09/12 - DS |
| 120919 | 8462320 | 02/01/12 | #2 North - W&B | 51 | < 10 | 03/09/12 - DS |
| 120920 | 8462319 | 02/01/12 | #3 East - WTP | 34 | < 10 | 03/09/12 - DS |
| 120921 | 8462309 | 02/02/12 | #1 South - Office | 63 | < 10 | 03/09/12 - DS |
| 120922 | 8462311 | 02/02/12 | #2 North - W&B | 21 | < 10 | 03/09/12 - DS |
| 120923 | 8462310 | 02/02/12 | #3 East - WTP | 64 | < 10 | 03/09/12 - DS |
| 120924 | 8545400 | 02/03/12 | #1 South - Office | 10 | < 10 | 03/09/12 - DS |
| 120925 | 8462302 | 02/03/12 | #2 North - W&B | < 10 | < 10 | 03/09/12 - DS |
| 120926 | 8462301 | 02/03/12 | #3 East - WTP | < 10 | < 10 | 03/09/12 - DS |
| 120927 | 8545391 | 02/06/12 | #1 South - Office | 34 | < 10 | 03/09/12 - DS |
| 120928 | 8545393 | 02/06/12 | #2 North - W&B | 20 | < 10 | 03/09/12 - DS |
| 120929 | 8545392 | 02/06/12 | #3 East - WTP | 27 | < 10 | 03/09/12 - DS |
| 120930 | 8545381 | 02/07/12 | #1 South - Office | 84 | < 10 | 03/09/12 - DS |
| 120931 | 8545383 | 02/07/12 | #2 North - W&B | 18 | < 10 | 03/09/12 - DS |
| 120932 | 8545382 | 02/07/12 | #3 East - WTP | 25 | < 10 | 03/09/12 - DS |
| 120933 | 8545372 | 02/08/12 | #1 South - Office | 54 | < 10 | 03/09/12 - DS |
| 120934 | 8545374 | 02/08/12 | #2 North - W&B | < 10 | < 10 | 03/09/12 - DS |
| 120935 | 8545373 | 02/08/12 | #3 East - WTP | 12 | < 10 | 03/09/12 - DS |
| 120936 | 8545362 | 02/09/12 | #1 South - Office | 17 | < 10 | 03/09/12 - DS |
| 120937 | 8545364 | 02/09/12 | #2 North - W&B | 15 | < 10 | 03/12/12 - DS |
| 120938 | 8545363 | 02/09/12 | #3 East - WTP | 14 | < 10 | 03/12/12 - DS |
| 120939 | 8545354 | 02/10/12 | #1 South - Office | 28 | < 10 | 03/12/12 - DS |
| 120940 | 8545356 | 02/10/12 | #2 North - W&B | 11 | < 10 | 03/12/12 - DS |
| 120941 | 8545355 | 02/10/12 | #3 East - WTP | 18 | < 10 | 03/12/12 - DS |

Submitted by: _____

Jennifer Vandelicht
 Digitally signed by Jennifer
 Vandelicht
 DN: cn=Jennifer Vandelicht,
 o=Inovatia Laboratories, LLC,
 ou=Quality Assurance,
 email=jvandelicht@inovatia.
 com, c=US
 Date: 2012.03.13 16:44:16 -0500

3/13/12

Date

This report has been produced for the exclusive and confidential use of our clients. Reference to the analyses, the results, or the corporation in any news releases, advertising, or other public announcement is prohibited without obtaining prior written consent.



120 East Davis Street
P.O. Box 30
Fayette, MO 65248-0030

Phone: (660) 248-1911
Fax: (660) 248-1921
http://www.inovatia.com

ANALYSIS REPORT

Client Information:
Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-0177
Date Received: 03/02/12
Analysis Method: 40 CFR §50
Appendix G

| | |
|-----------------|-------------------------------|
| Location | Elvins River Mines |
|-----------------|-------------------------------|

| Lab No. | Filter ID | Date | Site | µg Pb/Filter | µg Cd/Filter | Date - Analyst |
|---------|-----------|----------|-------------------|--------------|--------------|----------------|
| 121021 | 8545344 | 02/13/12 | #1 South - Office | 20 | < 10 | 03/27/12 - DS |
| 121022 | 8545346 | 02/13/12 | #2 North - W&B | 32 | < 10 | 03/27/12 - DS |
| 121023 | 8545345 | 02/13/12 | #3 East - WTP | 16 | < 10 | 03/27/12 - DS |
| 121024 | 8545335 | 02/14/12 | #1 South - Office | 19 | < 10 | 03/27/12 - DS |
| 121025 | 8545337 | 02/14/12 | #2 North - W&B | 15 | < 10 | 03/27/12 - DS |
| 121026 | 8545336 | 02/14/12 | #3 East - WTP | 23 | < 10 | 03/27/12 - DS |
| 121027 | 8545326 | 02/15/12 | #1 South - Office | < 10 | < 10 | 03/27/12 - DS |
| 121028 | 8545328 | 02/15/12 | #2 North - W&B | < 10 | < 10 | 03/27/12 - DS |
| 121029 | 8545327 | 02/15/12 | #3 East - WTP | < 10 | < 10 | 03/27/12 - DS |
| 121030 | 8545316 | 02/16/12 | #1 South - Office | 84 | < 10 | 03/27/12 - DS |
| 121031 | 8545318 | 02/16/12 | #2 North - W&B | 19 | < 10 | 03/27/12 - DS |
| 121032 | 8545317 | 02/16/12 | #3 East - WTP | 28 | < 10 | 03/27/12 - DS |
| 121033 | 8545306 | 02/17/12 | #1 South - Office | 31 | < 10 | 03/27/12 - DS |
| 121034 | 8545308 | 02/17/12 | #2 North - W&B | 32 | < 10 | 03/27/12 - DS |
| 121035 | 8545307 | 02/17/12 | #3 East - WTP | 27 | < 10 | 03/27/12 - DS |

Submitted by: _____

Jennifer Vandelicht
Digitally signed by Jennifer Vandelicht
DN: cn=Jennifer Vandelicht,
o=Inovatia Laboratories, LLC,
ou=Quality Assurance,
email=jvandelicht@inovatia.com,
c=US
Date: 2012.03.28 10:37:34 -0500

3/28/12

Date

This report has been produced for the exclusive and confidential use of our clients. Reference to the analyses, the results, or the corporation in any news releases, advertising, or other public announcement is prohibited without obtaining prior written consent.



120 East Davis Street
P.O. Box 30
Fayette, MO 65248-0030

Phone: (660) 248-1911
Fax: (660) 248-1921
http://www.inovatia.com

ANALYSIS REPORT

Client Information:
Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-0228
Date Received: 03/15/12
Analysis Method: 40 CFR §50
Appendix G

Location Elvins River
Mines

| Lab No. | Filter ID | Date | Site | µg Pb/Filter | µg Cd/Filter | Date - Analyst |
|---------|-----------|----------|-------------------|--------------|--------------|----------------|
| 121241 | 8546197 | 02/20/12 | #1 South - Office | < 10 | < 10 | 03/30/12 - DS |
| 121242 | 8546199 | 02/20/12 | #2 North - W&B | 15 | < 10 | 03/30/12 - DS |
| 121243 | 8546198 | 02/20/12 | #3 East - WTP | 10 | < 10 | 03/30/12 - DS |
| 121244 | 8546187 | 02/21/12 | #1 South - Office | 20 | < 10 | 03/30/12 - DS |
| 121245 | 8546189 | 02/21/12 | #2 North - W&B | 50 | < 10 | 03/30/12 - DS |
| 121246 | 8546188 | 02/21/12 | #3 East - WTP | 36 | < 10 | 03/30/12 - DS |
| 121247 | 8546179 | 02/22/12 | #1 South - Office | 15 | < 10 | 03/30/12 - DS |
| 121248 | 8546181 | 02/22/12 | #2 North - W&B | 28 | < 10 | 03/30/12 - DS |
| 121249 | 8546180 | 02/22/12 | #3 East - WTP | 46 | < 10 | 03/30/12 - DS |
| 121250 | 8546168 | 02/23/12 | #1 South - Office | 68 | < 10 | 03/28/12 - DS |
| 121251 | 8546170 | 02/23/12 | #2 North - W&B | 26 | < 10 | 03/28/12 - DS |
| 121252 | 8546169 | 02/23/12 | #3 East - WTP | 222 | < 10 | 03/28/12 - DS |
| 121253 | 8546160 | 02/24/12 | #1 South - Office | 70 | < 10 | 03/28/12 - DS |
| 121254 | 8546162 | 02/24/12 | #2 North - W&B | 22 | < 10 | 03/28/12 - DS |
| 121255 | 8546161 | 02/24/12 | #3 East - WTP | 122 | < 10 | 03/28/12 - DS |
| 121256 | 8546149 | 02/27/12 | #1 South - Office | 41 | < 10 | 03/28/12 - DS |
| 121257 | 8546151 | 02/27/12 | #2 North - W&B | 14 | < 10 | 03/28/12 - DS |
| 121258 | 8546150 | 02/27/12 | #3 East - WTP | 66 | < 10 | 03/28/12 - DS |
| 121259 | 8546140 | 02/28/12 | #1 South - Office | 13 | < 10 | 03/28/12 - DS |
| 121260 | 8546142 | 02/28/12 | #2 North - W&B | 26 | < 10 | 03/30/12 - DS |
| 121261 | 8546141 | 02/28/12 | #3 East - WTP | 87 | < 10 | 03/30/12 - DS |
| 121262 | 8546131 | 02/29/12 | #1 South - Office | 26 | < 10 | 03/30/12 - DS |
| 121263 | 8546133 | 02/29/12 | #2 North - W&B | 27 | < 10 | 03/30/12 - DS |
| 121264 | 8546127 | 02/29/12 | #3 East - WTP | < 10 | < 10 | 03/30/12 - DS |
| 121265 | 8546132 | 02/29/12 | #3 East - WTP | 39 | < 10 | 03/30/12 - DS |

Digitally signed by Jennifer Vandelicht
DN: cn=Jennifer Vandelicht,
o=Inovatia Laboratories,
LLC, ou=Quality Assurance,
email=jvandelicht@inovait
&.com, c=US
Date: 2012.03.30 15:18:46
-0500'

Submitted by: _____

3/30/12
Date

This report has been produced for the exclusive and confidential use of our clients. Reference to the analyses, the results, or the corporation in any news releases, advertising, or other public announcement is prohibited without obtaining prior written consent.



120 East Davis Street
 P.O. Box 30
 Fayette, MO 65248-0030

Phone: (660) 248-1911
 Fax: (660) 248-1921
 http://www.inovatia.com

ANALYSIS REPORT

Client Information:

Barr Engineering Company
 7390 Ohms Lane
 Edina, MN 55439-2330

Chain of Custody No.: 12-0165
Date Received: 02/22/12
Analysis Method: 40 CFR §50
 Appendix G

Location **Big River**

| Lab No. | Filter ID | Date | Site | µg Pb/Filter | µg Cd/Filter | Date - Analyst |
|---------|-----------|----------|------------|--------------|--------------|----------------|
| 120907 | 8462321 | 02/01/12 | #4 Primary | 42 | < 10 | 03/09/12 - DS |
| 120908 | 8462312 | 02/02/12 | #4 Primary | 67 | < 10 | 03/09/12 - DS |
| 120909 | 8462322 | 02/02/12 | #4 QA | 70 | < 10 | 03/09/12 - DS |
| 120910 | 8462303 | 02/03/12 | #4 Primary | < 10 | < 10 | 03/09/12 - DS |
| 120911 | 8545394 | 02/06/12 | #4 Primary | 14 | < 10 | 03/09/12 - DS |
| 120912 | 8545384 | 02/07/12 | #4 Primary | 22 | < 10 | 03/09/12 - DS |
| 120913 | 8545385 | 02/07/12 | #4 QA | 23 | < 10 | 03/09/12 - DS |
| 120914 | 8545375 | 02/08/12 | #4 Primary | < 10 | < 10 | 03/09/12 - DS |
| 120915 | 8545365 | 02/09/12 | #4 Primary | 14 | < 10 | 03/09/12 - DS |
| 120916 | 8545366 | 02/09/12 | #4 QA | 14 | < 10 | 03/09/12 - DS |
| 120917 | 8545357 | 02/10/12 | #4 Primary | 17 | < 10 | 03/09/12 - DS |

Submitted by: _____

Jennifer Vandelicht
 Digitally signed by Jennifer Vandelicht
 DN: cn=Jennifer Vandelicht, o=Inovatia Laboratories, LLC, ou=Quality Assurance, email=jvandelicht@inovatia.com, c=US
 Date: 2012.03.13 16:45:40 -0500

3/13/12

Date

This report has been produced for the exclusive and confidential use of our clients. Reference to the analyses, the results, or the corporation in any news releases, advertising, or other public announcement is prohibited without obtaining prior written consent.



120 East Davis Street
 P.O. Box 30
 Fayette, MO 65248-0030

Phone: (660) 248-1911
 Fax: (660) 248-1921
<http://www.inovatia.com>

ANALYSIS REPORT

Client Information:
 Barr Engineering Company
 7390 Ohms Lane
 Edina, MN 55439-2330

Chain of Custody No.: 12-0177
Date Received: 03/02/12
Analysis Method: 40 CFR §50
 Appendix G
Location: Big River

| Lab No. | Filter ID | Date | Site | µg Pb/Filter | µg Cd/Filter | Date - Analyst |
|---------|-----------|----------|------------|--------------|--------------|----------------|
| 121014 | 8545347 | 02/13/12 | #4 Primary | 24 | < 10 | 03/27/12 - DS |
| 121015 | 8545338 | 02/14/12 | #4 Primary | 20 | < 10 | 03/27/12 - DS |
| 121016 | 8545348 | 02/14/12 | #4 QA | 19 | < 10 | 03/27/12 - DS |
| 121017 | 8545329 | 02/15/12 | #4 Primary | 110 | < 10 | 03/27/12 - DS |
| 121018 | 8545319 | 02/16/12 | #4 Primary | 14 | < 10 | 03/27/12 - DS |
| 121019 | 8545320 | 02/16/12 | #4 QA | 15 | < 10 | 03/27/12 - DS |
| 121020 | 8545309 | 02/17/12 | #4 Primary | 35 | < 10 | 03/27/12 - DS |

Submitted by: Jennifer Vandevicht
Digitally signed by Jennifer Vandevicht
 DN: cn=Jennifer Vandevicht, o=Inovatia
 Laboratories, LLC, ou=Quality
 Assurance, email=jvandevicht@inovatia.
 com, c=US
 Date: 2012.03.28 10:28:02 -0500

3/28/12
 Date

This report has been produced for the exclusive and confidential use of our clients. Reference to the analyses, the results, or the corporation in any news releases, advertising, or other public announcement is prohibited without obtaining prior written consent.



120 East Davis Street
 P.O. Box 30
 Fayette, MO 65248-0030

Phone: (660) 248-1911
 Fax: (660) 248-1921
 http://www.inovatia.com

ANALYSIS REPORT

Client Information:

Barr Engineering Company
 7390 Ohms Lane
 Edina, MN 55439-2330

Chain of Custody No.: 12-0228
Date Received: 03/15/12
Analysis Method: 40 CFR §50
 Appendix G
Location: Big River

| Lab No. | Filter ID | Date | Site | µg Pb/Filter | µg Cd/Filter | Date - Analyst |
|---------|-----------|----------|------------|--------------|--------------|----------------|
| 121230 | 8546200 | 02/20/12 | #4 Primary | < 10 | < 10 | 03/28/12 - DS |
| 121231 | 8546190 | 02/21/12 | #4 Primary | 24 | < 10 | 03/28/12 - DS |
| 121232 | 8545301 | 02/21/12 | #4 QA | 26 | < 10 | 03/28/12 - DS |
| 121233 | 8546182 | 02/22/12 | #4 Primary | 14 | < 10 | 03/28/12 - DS |
| 121234 | 8546171 | 02/23/12 | #4 Primary | 59 | < 10 | 03/28/12 - DS |
| 121235 | 8546172 | 02/23/12 | #4 QA | 52 | < 10 | 03/28/12 - DS |
| 121236 | 8546163 | 02/24/12 | #4 Primary | 70 | < 10 | 03/28/12 - DS |
| 121237 | 8546152 | 02/27/12 | #4 Primary | 34 | < 10 | 03/28/12 - DS |
| 121238 | 8546143 | 02/28/12 | #4 Primary | 23 | < 10 | 03/28/12 - DS |
| 121239 | 8546153 | 02/28/12 | #4 QA | 26 | < 10 | 03/28/12 - DS |
| 121240 | 8546134 | 02/29/12 | #4 Primary | 29 | < 10 | 03/30/12 - DS |

Submitted by: _____

Jennifer Vandelicht
 Digitally signed by Jennifer Vandelicht
 DN: cn=Jennifer Vandelicht, o=Inovatia Laboratories, LLC, ou=Quality Assurance, email=jvandelicht@inovatia.com, c=US
 Date: 2012.03.30 15:19:15 -05'00'

3/30/12

Date

This report has been produced for the exclusive and confidential use of our clients. Reference to the analyses, the results, or the corporation in any news releases, advertising, or other public announcement is prohibited without obtaining prior written consent.

Meteorological Report

The Doe Run Company

Wind Speed

Site Name: Rivermines

Average Interval: 01 Hour

Units: mph

Sampling Frequency: 01 Second

| 2012 Day | Hour | | | | | | | | | | | | | | | | | | | | | | | | 24 Hour Avg | | |
|---|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|-------------|--------------------|-------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | Max | Avg | |
| 1-Feb | 3.7 | 3.8 | 2.7 | 1.6 | 1.7 | 1.5 | 2.0 | 0.2 | 0.6 | 2.9 | 2.9 | 2.8 | 4.7 | 4.4 | 5.3 | 7.0 | 6.4 | 5.0 | 2.6 | 1.9 | 0.4 | 0.7 | 1.2 | 0.5 | 7.0 | 2.8 | |
| 2-Feb | 0.5 | 1.6 | 2.8 | 2.8 | 3.3 | 3.4 | 2.8 | 0.8 | 1.2 | 0.7 | 1.4 | 2.3 | 3.1 | 3.2 | 3.7 | 3.9 | 4.9 | 2.6 | 1.7 | 2.1 | 2.1 | 0.3 | 0.6 | 1.5 | 4.9 | 2.2 | |
| 3-Feb | 3.0 | 2.9 | 2.7 | 2.0 | 0.4 | 1.3 | 1.8 | 2.6 | 2.6 | 5.5 | 6.1 | 5.5 | 5.3 | 5.6 | 6.2 | 5.5 | 6.7 | 6.4 | 6.2 | 5.2 | 5.2 | 5.6 | 3.4 | 4.9 | 6.7 | 4.3 | |
| 4-Feb | 3.5 | 2.1 | 5.9 | 4.9 | 3.8 | 0.6 | 0.0 | 0.2 | 0.3 | 0.6 | 0.0 | 2.9 | 4.7 | 8.4 | 8.1 | 5.2 | 4.3 | 4.5 | 3.8 | 2.9 | 2.9 | 1.8 | 1.0 | 2.7 | 8.4 | 3.1 | |
| 5-Feb | 2.8 | 3.0 | 4.8 | 5.3 | 4.8 | 5.1 | 6.4 | 5.8 | 7.3 | 7.0 | 6.1 | 6.2 | 6.5 | 6.3 | 4.9 | 3.9 | 3.3 | 1.6 | 0.1 | 0.3 | 0.0 | 0.0 | 0.2 | 1.9 | 7.3 | 3.9 | |
| 6-Feb | 0.5 | 1.5 | 1.6 | 1.5 | 2.0 | 2.3 | 0.8 | 2.5 | 0.9 | 0.1 | 3.1 | 4.5 | 5.9 | 4.9 | 4.9 | 5.6 | 4.1 | 1.1 | 0.9 | 0.2 | 0.2 | 0.7 | 2.0 | 2.3 | 5.9 | 2.2 | |
| 7-Feb | 1.6 | 1.9 | 0.9 | 1.2 | 2.4 | 1.2 | 2.2 | 1.1 | 0.2 | 0.8 | 1.6 | 1.5 | 2.2 | 4.3 | 7.8 | 2.9 | 2.3 | 2.8 | 3.3 | 2.9 | 6.0 | 4.9 | 5.0 | 3.5 | 7.8 | 2.7 | |
| 8-Feb | 5.0 | 6.2 | 6.4 | 7.5 | 6.6 | 5.8 | 6.0 | 7.0 | 7.3 | 6.4 | 6.6 | 6.4 | 6.7 | 5.7 | 5.5 | 4.3 | 4.4 | 1.4 | 0.3 | 0.2 | 0.0 | 0.2 | 0.4 | 0.0 | 7.5 | 4.4 | |
| 9-Feb | 0.2 | 0.0 | 0.0 | 0.4 | 0.2 | 0.8 | 0.9 | 2.0 | 1.6 | 0.5 | 1.5 | 2.4 | 3.5 | 2.9 | 1.8 | 3.3 | 3.3 | 3.4 | 1.7 | 2.8 | 2.4 | 1.1 | 1.7 | 1.3 | 3.5 | 1.7 | |
| 10-Feb | 2.0 | 1.8 | 3.7 | 4.2 | 4.9 | 4.9 | 5.1 | 4.8 | 4.5 | 5.4 | 4.6 | 5.8 | 5.9 | 5.1 | 3.2 | 5.4 | 14.2 | 12.4 | 12.8 | 12.7 | 14.5 | 13.7 | 11.2 | 13.8 | 14.5 | 7.4 | |
| 11-Feb | 13.0 | 10.9 | 8.7 | 11.8 | 12.9 | 11.8 | 11.3 | 12.5 | 11.7 | 11.4 | 10.8 | 12.8 | 12.6 | 13.8 | 13.2 | 12.7 | 13.9 | 9.7 | 8.5 | 6.5 | 5.7 | 6.5 | 6.2 | 4.7 | 13.9 | 10.6 | |
| 12-Feb | 2.4 | 2.2 | 2.3 | 2.6 | 3.9 | 3.6 | 3.6 | 5.0 | 6.2 | 8.7 | 7.3 | 6.5 | 5.8 | 5.0 | 4.6 | 4.1 | 2.5 | 0.1 | 0.1 | 0.0 | 0.3 | 0.1 | 0.1 | 0.8 | 8.7 | 3.3 | |
| 13-Feb | 0.5 | 0.3 | 1.5 | 3.5 | 3.9 | 4.3 | 6.2 | 7.8 | 6.2 | 5.8 | 7.0 | 7.5 | 10.1 | 7.2 | 5.7 | 7.6 | 8.0 | 7.0 | 6.7 | 6.8 | 5.9 | 6.8 | 7.1 | 6.8 | 10.1 | 5.8 | |
| 14-Feb | 5.7 | 5.1 | 4.5 | 4.1 | 3.4 | 3.8 | 2.2 | 1.3 | 1.1 | 2.3 | 4.3 | 4.1 | 3.3 | 3.7 | 5.0 | 4.0 | 5.6 | 5.2 | 3.8 | 4.4 | 2.5 | 2.5 | 2.9 | 3.3 | 5.7 | 3.7 | |
| 15-Feb | 5.5 | 6.6 | 8.3 | 7.8 | 5.0 | 4.6 | 5.7 | 4.7 | 3.5 | 6.0 | 8.6 | 7.4 | 7.1 | 5.9 | 4.5 | 4.2 | 2.6 | 2.1 | 6.9 | 6.6 | 5.0 | 0.3 | 0.1 | 0.0 | 8.6 | 5.0 | |
| 16-Feb | 0.6 | 1.7 | 2.0 | 2.5 | 4.1 | 4.3 | 5.2 | 3.8 | 5.8 | 9.6 | 8.8 | 8.5 | 7.5 | 7.3 | 7.2 | 7.5 | 5.0 | 2.3 | 0.7 | 2.0 | 0.1 | 0.5 | 2.3 | 2.0 | 9.6 | 4.1 | |
| 17-Feb | 0.3 | 0.1 | 0.3 | 1.2 | 0.3 | 0.0 | 0.1 | 0.3 | 1.4 | 0.3 | 5.7 | 6.9 | 7.1 | 7.1 | 6.5 | 7.0 | 5.9 | 4.3 | 2.7 | 1.0 | 1.1 | 0.2 | 0.2 | 1.5 | 7.1 | 2.6 | |
| 18-Feb | 0.1 | 1.6 | 0.7 | 2.4 | 3.8 | 3.9 | 5.1 | 5.2 | 6.3 | 7.0 | 6.4 | 6.4 | 5.1 | 5.7 | 5.4 | 5.5 | 5.5 | 3.9 | 4.4 | 4.1 | 5.0 | 4.8 | 4.4 | 4.3 | 7.0 | 4.5 | |
| 19-Feb | 4.2 | 2.7 | 3.9 | 4.8 | 4.0 | 4.4 | 4.5 | 4.3 | 5.2 | 6.5 | 7.5 | 8.1 | 7.4 | 8.2 | 6.5 | 6.6 | 4.9 | 3.5 | 2.8 | 0.1 | 0.6 | 0.6 | 1.3 | 0.3 | 8.2 | 4.3 | |
| 20-Feb | 0.0 | 0.2 | 0.0 | 0.2 | 0.8 | 1.3 | 0.9 | 0.9 | 2.1 | 5.5 | 6.2 | 8.3 | 7.6 | 8.9 | 9.9 | 9.5 | 9.1 | 7.9 | 8.1 | 6.1 | 6.6 | 7.5 | 9.7 | 8.8 | 9.9 | 5.3 | |
| 21-Feb | 10.2 | 11.5 | 11.8 | 13.1 | 11.1 | 8.4 | 8.8 | 8.6 | 8.3 | 7.8 | 8.9 | 9.8 | 9.1 | 7.5 | 7.1 | 9.0 | 8.4 | 6.5 | 1.3 | 1.7 | 0.2 | 0.0 | 0.0 | 0.3 | 13.1 | 7.1 | |
| 22-Feb | 1.1 | 0.7 | 0.1 | 0.6 | 0.7 | 1.4 | 1.3 | 1.8 | 0.9 | 1.9 | 7.3 | 8.0 | 8.7 | 9.3 | 8.7 | 9.4 | 5.9 | 3.5 | 0.1 | 1.6 | 0.3 | 0.0 | 0.1 | 0.0 | 9.4 | 3.1 | |
| 23-Feb | 0.0 | 0.3 | 1.4 | 1.6 | 0.6 | 2.4 | 3.6 | 4.6 | 8.0 | 8.2 | 6.4 | 7.6 | 7.9 | 7.7 | 8.5 | 9.0 | 6.9 | 6.3 | 3.5 | 8.1 | 7.9 | 8.4 | 7.6 | 9.9 | 9.9 | 5.7 | |
| 24-Feb | 9.7 | 9.0 | 11.2 | 10.2 | 12.2 | 11.4 | 10.1 | 9.1 | 9.3 | 8.3 | 9.0 | 9.1 | 8.1 | 9.3 | 12.0 | 9.8 | 7.5 | 6.0 | 5.4 | 2.4 | 3.0 | 2.8 | 2.2 | 0.9 | 12.2 | 7.8 | |
| 25-Feb | 1.9 | 3.7 | 3.7 | 4.2 | 5.2 | 6.2 | 7.8 | 8.5 | 10.4 | 8.9 | 7.5 | 6.7 | 5.8 | 5.1 | 4.6 | 4.7 | 3.7 | 0.8 | 0.0 | 1.0 | 2.4 | 2.8 | 4.5 | 4.6 | 10.4 | 4.8 | |
| 26-Feb | 6.1 | 4.4 | 4.8 | 5.5 | 7.7 | 7.9 | 9.9 | 10.8 | 8.1 | 13.1 | 13.5 | 13.7 | 15.2 | 16.0 | 13.3 | 12.9 | 10.9 | 8.1 | 5.8 | 5.1 | 5.9 | 8.0 | 7.9 | 8.3 | 16.0 | 9.3 | |
| 27-Feb | 7.6 | 4.3 | 4.1 | 3.6 | 3.5 | 1.8 | 3.2 | 5.3 | 6.9 | 8.4 | 7.1 | 6.7 | 7.6 | 6.5 | 5.7 | 5.0 | 5.1 | 6.8 | 3.2 | 2.8 | 2.7 | 1.9 | 0.8 | 0.1 | 8.4 | 4.6 | |
| 28-Feb | 0.0 | 0.2 | 0.0 | 0.3 | 2.0 | 2.1 | 4.1 | 2.8 | 3.0 | 3.4 | 4.3 | 5.6 | 6.3 | 7.1 | 8.1 | 8.0 | 9.2 | 9.4 | 6.6 | 7.4 | 10.1 | 7.0 | 6.6 | 12.9 | 12.9 | 5.3 | |
| 29-Feb | 16.0 | 16.3 | 16.7 | 8.9 | 7.4 | 5.2 | 4.4 | 5.3 | 7.5 | 9.6 | 10.2 | 11.1 | 13.2 | 14.6 | 14.0 | 13.5 | 14.7 | 11.8 | 9.5 | 6.8 | 4.9 | 5.9 | 5.8 | 3.4 | 16.7 | 9.9 | |
|  | | | | | | | | | | | | | | | | | | | | | | | | Maximum Hour//Monthly Average Total Hours in Month Valid Hours//Percent Data Captured | | 16.7 696 696 | 4.9 100.0% |

Meteorological Report

The Doe Run Company

Wind Direction

Site Name: Rivermines

Average Interval: 01 Hour

Units: Degrees

Sampling Frequency: 01 Second

| 2012 | Hour | | | | | | | | | | | | | | | | | | | | | | | | 24 Hour Avg |
|------------------------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------|-------------|
| Day | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | |
| 1-Feb | 251 | 238 | 251 | 256 | 215 | 303 | 319 | 182 | 253 | 39 | 25 | 3 | 348 | 348 | 340 | 0 | 351 | 346 | 332 | 335 | 327 | 273 | 268 | 183 | 241 |
| 2-Feb | 190 | 219 | 217 | 214 | 215 | 226 | 217 | 215 | 220 | 264 | 16 | 86 | 82 | 94 | 82 | 100 | 81 | 89 | 108 | 110 | 108 | 143 | 71 | 72 | 143 |
| 3-Feb | 121 | 114 | 73 | 42 | 32 | 60 | 104 | 76 | 73 | 120 | 136 | 135 | 128 | 118 | 125 | 125 | 131 | 114 | 122 | 129 | 116 | 140 | 144 | 348 | 118 |
| 4-Feb | 3 | 77 | 116 | 105 | 154 | 84 | 49 | 99 | 17 | 15 | 161 | 248 | 270 | 309 | 313 | 281 | 287 | 274 | 269 | 262 | 242 | 259 | 254 | 280 | 184 |
| 5-Feb | 262 | 287 | 318 | 325 | 339 | 336 | 341 | 349 | 350 | 348 | 352 | 348 | 333 | 354 | 342 | 314 | 302 | 276 | 217 | 233 | 180 | 203 | 225 | 232 | 299 |
| 6-Feb | 217 | 232 | 231 | 234 | 235 | 239 | 221 | 238 | 256 | 280 | 282 | 270 | 286 | 284 | 273 | 285 | 261 | 270 | 187 | 332 | 179 | 186 | 219 | 220 | 245 |
| 7-Feb | 198 | 205 | 200 | 232 | 221 | 212 | 220 | 232 | 225 | 360 | 287 | 291 | 227 | 278 | 330 | 258 | 269 | 263 | 269 | 262 | 9 | 355 | 356 | 331 | 254 |
| 8-Feb | 327 | 325 | 333 | 325 | 331 | 328 | 334 | 339 | 337 | 342 | 340 | 337 | 333 | 329 | 331 | 320 | 322 | 316 | 331 | 320 | 343 | 324 | 330 | 202 | 325 |
| 9-Feb | 141 | 197 | 235 | 302 | 274 | 229 | 205 | 212 | 231 | 298 | 272 | 241 | 219 | 213 | 203 | 199 | 201 | 180 | 184 | 187 | 186 | 190 | 172 | 215 | 216 |
| 10-Feb | 206 | 189 | 203 | 207 | 211 | 213 | 216 | 220 | 219 | 222 | 233 | 219 | 241 | 252 | 259 | 273 | 332 | 320 | 328 | 320 | 328 | 328 | 323 | 326 | 258 |
| 11-Feb | 320 | 318 | 310 | 325 | 321 | 323 | 320 | 324 | 320 | 321 | 323 | 337 | 326 | 322 | 321 | 326 | 319 | 323 | 316 | 309 | 298 | 305 | 306 | 308 | 318 |
| 12-Feb | 275 | 277 | 288 | 285 | 270 | 275 | 287 | 297 | 310 | 336 | 336 | 314 | 326 | 280 | 284 | 290 | 283 | 261 | 136 | 174 | 217 | 164 | 272 | 340 | 274 |
| 13-Feb | 348 | 166 | 176 | 171 | 169 | 171 | 197 | 197 | 190 | 181 | 177 | 180 | 183 | 171 | 172 | 174 | 181 | 186 | 186 | 188 | 193 | 198 | 199 | 197 | 190 |
| 14-Feb | 197 | 206 | 214 | 219 | 233 | 237 | 236 | 280 | 288 | 276 | 271 | 270 | 265 | 243 | 212 | 201 | 181 | 174 | 185 | 160 | 119 | 154 | 162 | 217 | 217 |
| 15-Feb | 189 | 188 | 191 | 184 | 173 | 170 | 191 | 171 | 177 | 186 | 187 | 186 | 179 | 175 | 186 | 186 | 184 | 167 | 163 | 172 | 184 | 336 | 353 | 183 | 194 |
| 16-Feb | 250 | 252 | 263 | 284 | 297 | 300 | 300 | 302 | 294 | 317 | 306 | 311 | 297 | 310 | 302 | 317 | 299 | 296 | 218 | 207 | 178 | 204 | 227 | 201 | 272 |
| 17-Feb | 194 | 184 | 201 | 215 | 210 | 168 | 223 | 238 | 239 | 347 | 172 | 173 | 185 | 206 | 211 | 194 | 201 | 184 | 176 | 190 | 236 | 204 | 196 | 223 | 207 |
| 18-Feb | 200 | 224 | 215 | 19 | 345 | 341 | 11 | 16 | 11 | 18 | 14 | 21 | 14 | 32 | 37 | 25 | 26 | 36 | 37 | 35 | 28 | 33 | 44 | 33 | 76 |
| 19-Feb | 34 | 27 | 17 | 18 | 14 | 3 | 359 | 5 | 8 | 2 | 16 | 20 | 14 | 16 | 26 | 25 | 27 | 54 | 69 | 341 | 103 | 92 | 88 | 358 | 72 |
| 20-Feb | 161 | 177 | 355 | 271 | 76 | 49 | 185 | 3 | 91 | 150 | 158 | 161 | 151 | 145 | 146 | 161 | 170 | 162 | 144 | 165 | 178 | 177 | 178 | 181 | 158 |
| 21-Feb | 178 | 190 | 211 | 240 | 243 | 244 | 244 | 245 | 251 | 262 | 256 | 256 | 256 | 249 | 247 | 237 | 236 | 228 | 212 | 211 | 220 | 187 | 183 | 224 | 230 |
| 22-Feb | 186 | 203 | 193 | 209 | 195 | 211 | 187 | 227 | 259 | 257 | 227 | 240 | 233 | 240 | 237 | 251 | 312 | 331 | 33 | 4 | 164 | 193 | 170 | 193 | 206 |
| 23-Feb | 188 | 188 | 47 | 44 | 45 | 48 | 72 | 102 | 121 | 116 | 129 | 154 | 208 | 232 | 243 | 244 | 258 | 300 | 284 | 294 | 285 | 300 | 289 | 276 | 186 |
| 24-Feb | 280 | 273 | 265 | 271 | 272 | 279 | 287 | 292 | 295 | 284 | 285 | 282 | 283 | 292 | 301 | 289 | 283 | 285 | 297 | 266 | 224 | 226 | 242 | 255 | 275 |
| 25-Feb | 259 | 265 | 267 | 271 | 274 | 282 | 294 | 305 | 309 | 309 | 298 | 307 | 312 | 276 | 275 | 277 | 274 | 285 | 150 | 118 | 132 | 138 | 145 | 152 | 249 |
| 26-Feb | 149 | 171 | 162 | 170 | 173 | 168 | 165 | 171 | 175 | 187 | 195 | 205 | 198 | 203 | 194 | 187 | 191 | 185 | 178 | 177 | 183 | 189 | 203 | 202 | 183 |
| 27-Feb | 206 | 236 | 245 | 255 | 244 | 251 | 313 | 359 | 357 | 347 | 357 | 0 | 351 | 3 | 20 | 349 | 339 | 9 | 45 | 59 | 71 | 77 | 108 | 358 | 207 |
| 28-Feb | 180 | 123 | 136 | 84 | 108 | 87 | 102 | 89 | 87 | 143 | 150 | 166 | 152 | 155 | 164 | 165 | 165 | 164 | 169 | 165 | 177 | 186 | 180 | 190 | 145 |
| 29-Feb | 198 | 199 | 221 | 218 | 246 | 243 | 245 | 250 | 243 | 246 | 248 | 254 | 248 | 250 | 259 | 254 | 246 | 251 | 255 | 261 | 270 | 268 | 267 | 281 | 246 |
| Total Hours in Month | | | | | | | | | | | | | | | | | | | | | | | | 696 | |
| Valid Hours | | | | | | | | | | | | | | | | | | | | | | | | 696 | |
| Percent Data Captured | | | | | | | | | | | | | | | | | | | | | | | | 100.0% | |



Meteorological Report

The Doe Run Company

ΣΘ

Site Name: Rivermines

Average Interval: 01 Hour

Units: Degrees

| 2012 | Hour | | | | | | | | | | | | | | | | | | | | | | | | 24 Hour Avg |
|---|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|---|-------------|
| Day | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | |
| 1-Feb | 19.0 | 16.1 | 10.9 | 12.3 | 16.8 | 18.5 | 19.5 | 2.3 | 11.9 | 28.4 | 35.9 | 34.1 | 25.8 | 31.0 | 24.7 | 20.0 | 15.4 | 12.1 | 9.0 | 10.1 | 4.8 | 22.9 | 15.3 | 8.8 | 18 |
| 2-Feb | 8.8 | 12.7 | 13.9 | 16.6 | 15.8 | 15.6 | 14.1 | 10.1 | 11.8 | 18.8 | 16.9 | 29.7 | 30.4 | 44.4 | 31.0 | 26.7 | 19.4 | 17.3 | 11.6 | 15.8 | 18.7 | 5.7 | 13.0 | 13.8 | 18 |
| 3-Feb | 15.4 | 18.9 | 20.4 | 6.7 | 1.6 | 6.3 | 14.5 | 22.3 | 18.8 | 20.6 | 21.6 | 22.7 | 21.5 | 21.6 | 22.0 | 22.5 | 21.8 | 20.6 | 20.8 | 23.2 | 21.5 | 22.8 | 23.0 | 16.7 | 19 |
| 4-Feb | 13.2 | 14.4 | 17.3 | 48.6 | 21.4 | 9.1 | 0.2 | 4.6 | 2.6 | 4.2 | 1.9 | 23.1 | 28.3 | 20.3 | 18.2 | 19.0 | 20.2 | 18.0 | 16.8 | 14.9 | 13.8 | 13.9 | 11.5 | 14.3 | 15 |
| 5-Feb | 14.5 | 16.4 | 13.3 | 12.9 | 16.2 | 14.5 | 14.7 | 14.4 | 15.4 | 16.0 | 17.4 | 16.4 | 14.1 | 15.9 | 15.8 | 17.6 | 15.7 | 13.6 | 4.6 | 4.4 | 0.2 | 0.8 | 4.7 | 14.7 | 13 |
| 6-Feb | 7.8 | 11.6 | 13.1 | 13.5 | 12.8 | 13.6 | 8.5 | 13.8 | 7.7 | 4.9 | 26.4 | 28.5 | 28.7 | 29.4 | 30.2 | 26.3 | 18.2 | 15.7 | 3.5 | 19.2 | 1.5 | 7.5 | 11.9 | 18.8 | 16 |
| 7-Feb | 12.3 | 13.7 | 6.6 | 10.0 | 16.1 | 11.4 | 16.5 | 12.2 | 5.8 | 6.3 | 20.9 | 39.5 | 37.7 | 26.2 | 15.8 | 34.1 | 13.9 | 15.1 | 17.5 | 18.7 | 14.6 | 14.2 | 14.1 | 12.3 | 17 |
| 8-Feb | 12.9 | 12.2 | 12.6 | 11.4 | 13.3 | 13.3 | 14.5 | 15.1 | 14.8 | 16.0 | 15.4 | 16.3 | 15.2 | 19.6 | 17.9 | 17.3 | 13.2 | 11.7 | 4.0 | 0.4 | 3.3 | 1.0 | 5.2 | 0.1 | 12 |
| 9-Feb | 6.0 | 1.3 | 1.4 | 15.0 | 6.4 | 16.2 | 10.2 | 17.5 | 14.5 | 6.6 | 24.8 | 26.0 | 22.2 | 27.7 | 20.8 | 16.8 | 16.6 | 16.3 | 20.4 | 18.9 | 19.3 | 13.4 | 17.3 | 17.5 | 16 |
| 10-Feb | 12.1 | 16.0 | 14.4 | 15.3 | 15.9 | 13.1 | 15.5 | 15.1 | 15.1 | 15.9 | 16.6 | 15.9 | 19.2 | 18.6 | 18.6 | 19.4 | 14.4 | 14.1 | 15.5 | 15.2 | 15.2 | 16.6 | 15.0 | 14.3 | 16 |
| 11-Feb | 15.5 | 14.1 | 15.5 | 15.6 | 13.1 | 14.6 | 13.6 | 13.6 | 15.1 | 16.2 | 19.7 | 17.5 | 18.9 | 16.7 | 17.0 | 17.5 | 14.3 | 12.6 | 12.6 | 12.7 | 16.5 | 15.6 | 13.9 | 14.5 | 15 |
| 12-Feb | 18.0 | 19.8 | 16.2 | 17.5 | 14.3 | 18.2 | 17.9 | 16.3 | 21.9 | 17.5 | 19.1 | 23.9 | 29.6 | 42.2 | 31.1 | 36.2 | 26.7 | 3.8 | 2.3 | 0.0 | 5.2 | 0.1 | 18.9 | 14.9 | 18 |
| 13-Feb | 11.5 | 6.2 | 9.6 | 16.4 | 15.9 | 20.7 | 17.8 | 15.5 | 19.1 | 18.6 | 19.9 | 19.9 | 20.3 | 21.3 | 20.8 | 21.4 | 19.9 | 19.3 | 18.8 | 17.5 | 15.1 | 16.3 | 15.6 | 14.0 | 17 |
| 14-Feb | 12.7 | 15.1 | 16.4 | 14.4 | 16.0 | 15.6 | 10.9 | 12.1 | 9.4 | 20.4 | 22.0 | 26.2 | 30.8 | 30.3 | 28.5 | 36.1 | 17.0 | 13.7 | 13.7 | 10.4 | 14.3 | 13.0 | 17.3 | 26.7 | 19 |
| 15-Feb | 16.9 | 15.4 | 14.4 | 16.6 | 28.2 | 25.7 | 27.6 | 22.8 | 34.9 | 17.6 | 15.2 | 17.4 | 17.9 | 22.7 | 21.6 | 18.9 | 30.7 | 17.4 | 19.7 | 18.4 | 16.5 | 20.3 | 1.4 | 2.1 | 19 |
| 16-Feb | 9.9 | 11.8 | 13.1 | 15.3 | 15.0 | 15.9 | 16.9 | 15.4 | 19.0 | 16.1 | 18.7 | 18.7 | 22.0 | 21.2 | 22.4 | 15.0 | 20.8 | 14.3 | 7.5 | 13.2 | 1.3 | 6.4 | 16.3 | 13.7 | 15 |
| 17-Feb | 3.2 | 1.0 | 4.8 | 9.7 | 5.2 | 0.2 | 4.0 | 6.2 | 10.6 | 5.0 | 23.4 | 26.4 | 24.4 | 19.4 | 26.8 | 22.0 | 18.3 | 11.3 | 12.5 | 10.1 | 10.8 | 1.3 | 4.6 | 16.4 | 12 |
| 18-Feb | 2.1 | 11.2 | 11.4 | 26.1 | 23.9 | 22.7 | 15.4 | 13.3 | 14.5 | 15.2 | 17.3 | 18.8 | 22.9 | 21.6 | 23.4 | 19.8 | 17.5 | 18.0 | 18.4 | 18.5 | 16.4 | 19.0 | 21.0 | 17.6 | 18 |
| 19-Feb | 17.1 | 15.4 | 15.1 | 15.6 | 15.4 | 13.0 | 13.2 | 15.9 | 15.1 | 17.0 | 19.7 | 23.9 | 21.3 | 18.1 | 25.4 | 23.3 | 21.8 | 15.7 | 12.2 | 1.2 | 6.7 | 10.1 | 13.0 | 20.7 | 16 |
| 20-Feb | 2.2 | 2.1 | 0.0 | 1.4 | 10.1 | 18.0 | 8.7 | 26.1 | 21.6 | 24.4 | 27.3 | 23.5 | 25.7 | 25.7 | 25.0 | 23.1 | 22.3 | 19.5 | 24.8 | 24.1 | 21.9 | 19.1 | 18.1 | 17.0 | 18 |
| 21-Feb | 17.5 | 15.0 | 16.5 | 19.2 | 17.1 | 20.2 | 18.1 | 17.8 | 20.4 | 18.4 | 20.5 | 20.0 | 21.5 | 26.8 | 22.4 | 22.4 | 20.3 | 14.6 | 7.7 | 8.0 | 2.1 | 0.3 | 0.2 | 6.9 | 16 |
| 22-Feb | 17.5 | 9.9 | 1.6 | 8.2 | 9.2 | 16.4 | 7.0 | 12.6 | 10.0 | 17.6 | 17.0 | 19.3 | 20.3 | 21.2 | 22.2 | 20.4 | 17.4 | 13.3 | 4.1 | 10.6 | 9.1 | 0.2 | 23.1 | 1.5 | 13 |
| 23-Feb | 0.2 | 6.0 | 23.8 | 6.1 | 20.6 | 23.3 | 20.6 | 36.6 | 21.2 | 18.9 | 24.5 | 25.4 | 27.4 | 27.0 | 23.8 | 21.9 | 20.7 | 17.0 | 17.3 | 19.2 | 22.8 | 20.2 | 20.2 | 20.3 | 20 |
| 24-Feb | 19.3 | 18.9 | 19.8 | 19.5 | 20.0 | 20.7 | 22.0 | 20.9 | 21.4 | 20.8 | 22.3 | 22.0 | 22.3 | 24.0 | 18.9 | 22.8 | 23.8 | 20.2 | 17.0 | 12.6 | 10.9 | 16.4 | 19.7 | 9.8 | 19 |
| 25-Feb | 16.4 | 24.5 | 14.8 | 17.9 | 17.5 | 19.4 | 18.5 | 17.2 | 20.4 | 20.3 | 23.9 | 34.0 | 49.3 | 37.5 | 48.6 | 42.3 | 28.5 | 15.6 | 1.0 | 8.5 | 17.6 | 17.9 | 17.8 | 21.9 | 23 |
| 26-Feb | 22.5 | 22.5 | 20.7 | 22.9 | 19.8 | 19.0 | 17.9 | 18.3 | 19.1 | 17.3 | 19.1 | 18.3 | 19.3 | 18.8 | 19.1 | 17.7 | 17.4 | 15.9 | 13.4 | 13.4 | 11.2 | 13.5 | 13.6 | 13.4 | 18 |
| 27-Feb | 14.8 | 18.2 | 17.1 | 13.1 | 11.9 | 11.7 | 17.9 | 16.6 | 17.9 | 17.8 | 19.9 | 27.4 | 23.4 | 31.0 | 27.0 | 29.1 | 21.7 | 15.3 | 15.7 | 14.3 | 15.4 | 15.0 | 10.3 | 2.1 | 18 |
| 28-Feb | 2.6 | 5.2 | 0.9 | 9.2 | 25.6 | 25.0 | 22.0 | 22.8 | 20.7 | 23.0 | 24.1 | 28.8 | 27.1 | 22.8 | 22.5 | 20.0 | 21.6 | 19.6 | 19.6 | 19.5 | 20.7 | 17.4 | 16.9 | 15.4 | 19 |
| 29-Feb | 15.4 | 15.2 | 29.3 | 18.2 | 18.0 | 16.6 | 15.8 | 16.8 | 19.7 | 20.3 | 19.9 | 22.2 | 21.4 | 19.9 | 21.4 | 20.3 | 20.2 | 20.4 | 18.7 | 19.0 | 17.8 | 19.2 | 18.0 | 14.8 | 19 |
| Total Hours in Month Valid Hours Percent Data Captured | | | | | | | | | | | | | | | | | | | | | | | | 696 696 100.0% | |



Meteorological Report

The Doe Run Company

Temperature

Site Name: Riverlines

Average Interval: 01 Hour

Units: Deg. C

Sampling Frequency: 01 Second

| 2012 Day | Hour | | | | | | | | | | | | | | | | | | | | | | | | 24 Hour | | |
|---|------|----|----|----|----|----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|------------------------------|---------|--------|-----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | Max | Avg | |
| 1-Feb | 14 | 14 | 13 | 12 | 10 | 8 | 7 | 6 | 10 | 12 | 14 | 15 | 16 | 16 | 17 | 17 | 16 | 14 | 11 | 9 | 7 | 6 | 4 | 3 | 16.9 | 11.2 | |
| 2-Feb | 1 | 0 | 0 | 0 | 0 | 0 | -1 | -1 | 2 | 7 | 12 | 15 | 16 | 17 | 17 | 17 | 16 | 14 | 11 | 11 | 10 | 8 | 6 | 6 | 17.1 | 7.6 | |
| 3-Feb | 8 | 8 | 7 | 4 | 3 | 3 | 4 | 3 | 5 | 10 | 10 | 10 | 9 | 9 | 10 | 10 | 9 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 10.3 | 7.5 | |
| 4-Feb | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 10 | 11 | 14 | 16 | 14 | 12 | 11 | 10 | 9 | 9 | 8 | 8 | 7 | 7 | 7 | 15.7 | 9.4 | |
| 5-Feb | 7 | 7 | 6 | 6 | 6 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 4 | 2 | 1 | 0 | -1 | -1 | -1 | 7.4 | 3.7 | | |
| 6-Feb | -2 | -2 | -3 | -3 | -3 | -3 | -4 | -3 | 0 | 3 | 6 | 9 | 10 | 10 | 11 | 11 | 10 | 8 | 3 | 1 | -1 | -2 | -2 | -2 | 11.1 | 2.2 | |
| 7-Feb | -2 | -3 | -3 | -4 | -4 | -4 | -3 | -3 | -1 | 1 | 5 | 8 | 9 | 10 | 9 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 9.9 | 2.6 | |
| 8-Feb | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1.2 | 0.5 | |
| 9-Feb | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2.1 | 0.9 | |
| 10-Feb | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 4 | 4 | 4 | 1 | 0 | -1 | -2 | -3 | -4 | -5 | -6 | 3.9 | 0.6 | |
| 11-Feb | -7 | -7 | -7 | -7 | -7 | -7 | -8 | -8 | -8 | -7 | -5 | -4 | -3 | -3 | -2 | -2 | -2 | -3 | -4 | -5 | -5 | -5 | -6 | -7 | -1.9 | -5.4 | |
| 12-Feb | -8 | -9 | -9 | -9 | -9 | -9 | -10 | -9 | -7 | -5 | -3 | -1 | 3 | 3 | 3 | 3 | 3 | 1 | -3 | -4 | -5 | -6 | -6 | -6 | 3.3 | -4.4 | |
| 13-Feb | -7 | -7 | -4 | -2 | -1 | -1 | -1 | -1 | -1 | -1 | 0 | 0 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 | 0 | 0.2 | -1.5 | |
| 14-Feb | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 2 | 4 | 5 | 6 | 7 | 7 | 8 | 7 | 5 | 4 | 3 | 2 | 2 | 2 | 3 | 7.7 | 3.0 | |
| 15-Feb | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 4 | 4 | 5 | 5 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7.4 | 5.5 | |
| 16-Feb | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 9 | 9 | 9 | 8 | 8 | 6 | 3 | 1 | 0 | -1 | -1 | -1 | 9.2 | 5.6 | |
| 17-Feb | -2 | -2 | -3 | -3 | -3 | -4 | -4 | -3 | -1 | 3 | 9 | 10 | 12 | 13 | 14 | 13 | 13 | 11 | 8 | 6 | 3 | 2 | 2 | 3 | 13.6 | 3.9 | |
| 18-Feb | 3 | 3 | 3 | 4 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 5 | 5 | 4 | 4 | 4 | 3 | 6.5 | 4.6 | |
| 19-Feb | 2 | 1 | 1 | 1 | 0 | -1 | -1 | -1 | 0 | 2 | 3 | 5 | 6 | 6 | 7 | 7 | 6 | 5 | 3 | 0 | -1 | -2 | -2 | -4 | 6.6 | 1.8 | |
| 20-Feb | -5 | -5 | -6 | -6 | -6 | -6 | -7 | -5 | -1 | 4 | 6 | 8 | 9 | 10 | 11 | 11 | 10 | 9 | 8 | 7 | 7 | 7 | 8 | 7 | 10.5 | 3.0 | |
| 21-Feb | 6 | 6 | 7 | 8 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 10 | 11 | 13 | 13 | 13 | 13 | 12 | 9 | 7 | 4 | 2 | 1 | 1 | 13.5 | 7.9 | |
| 22-Feb | 1 | 0 | -1 | -2 | -2 | -2 | -3 | -1 | 5 | 11 | 15 | 15 | 17 | 17 | 19 | 19 | 18 | 16 | 14 | 12 | 9 | 5 | 3 | 3 | 19.1 | 8.0 | |
| 23-Feb | 3 | 5 | 5 | 5 | 5 | 5 | 7 | 9 | 11 | 13 | 15 | 16 | 19 | 21 | 23 | 23 | 23 | 20 | 18 | 17 | 14 | 12 | 11 | 10 | 23.1 | 12.9 | |
| 24-Feb | 9 | 7 | 6 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 7 | 7 | 7 | 6 | 6 | 5 | 3 | 2 | 0 | 0 | 0 | 8.8 | 4.5 | |
| 25-Feb | 0 | 1 | 2 | 0 | 0 | 0 | -1 | -1 | 0 | 1 | 2 | 4 | 5 | 6 | 7 | 7 | 7 | 6 | 2 | 0 | 1 | 1 | 1 | 2 | 7.3 | 2.2 | |
| 26-Feb | 1 | 2 | 1 | 1 | 1 | 2 | 2 | 3 | 6 | 9 | 11 | 14 | 15 | 16 | 16 | 16 | 16 | 15 | 13 | 12 | 11 | 11 | 11 | 11 | 16.4 | 8.9 | |
| 27-Feb | 11 | 11 | 11 | 10 | 9 | 7 | 6 | 7 | 9 | 9 | 10 | 11 | 12 | 13 | 13 | 13 | 13 | 12 | 9 | 6 | 6 | 5 | 3 | 1 | 13.2 | 9.1 | |
| 28-Feb | -1 | -1 | -1 | 0 | 3 | 4 | 5 | 5 | 6 | 8 | 9 | 12 | 15 | 16 | 17 | 17 | 17 | 16 | 16 | 15 | 14 | 15 | 15 | 17 | 17.1 | 9.9 | |
| 29-Feb | 18 | 19 | 18 | 13 | 13 | 12 | 11 | 11 | 14 | 16 | 17 | 19 | 19 | 20 | 19 | 19 | 18 | 16 | 15 | 14 | 12 | 12 | 11 | 10 | 19.5 | 15.1 | |
|  | | | | | | | | | | | | | | | | | | | | | | | | Maximum Hour/Monthly Average | | 23.1 | 4.9 |
| | | | | | | | | | | | | | | | | | | | | | | | | Total Hours in Month | | 696 | |
| | | | | | | | | | | | | | | | | | | | | | | | | Valid Hours | | 696 | |
| | | | | | | | | | | | | | | | | | | | | | | | | Percent Data Captured | | 100.0% | |

Meteorological Report

The Doe Run Company

Site Pressure

Site Name: Rivermines

Average Interval: 01 Hour

Units: mmHg

Sampling Frequency: 01 Second

| 2012 Day | Hour | | | | | | | | | | | | | | | | | | | | | | | | 24 Hour | | | |
|---|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------------------------------------|---------|-----|--------|-----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | Max | Avg | | |
| 1-Feb | 745 | 748 | 748 | 746 | 748 | 748 | 747 | 747 | 747 | 747 | 747 | 747 | 746 | 748 | 748 | 746 | 746 | 746 | 747 | 748 | 748 | 749 | 749 | 749 | 749 | 749 | 747 | |
| 2-Feb | 749 | 750 | 750 | 750 | 750 | 751 | 751 | 752 | 752 | 752 | 752 | 752 | 751 | 751 | 750 | 750 | 750 | 751 | 751 | 752 | 752 | 752 | 752 | 752 | 752 | 752 | 752 | 751 |
| 3-Feb | 752 | 752 | 752 | 752 | 752 | 752 | 752 | 752 | 752 | 751 | 751 | 751 | 751 | 749 | 749 | 749 | 748 | 748 | 748 | 748 | 747 | 747 | 747 | 747 | 747 | 747 | 752 | 750 |
| 4-Feb | 747 | 747 | 748 | 744 | 745 | 745 | 745 | 745 | 745 | 745 | 745 | 744 | 744 | 745 | 745 | 748 | 748 | 748 | 747 | 747 | 747 | 747 | 747 | 747 | 747 | 747 | 747 | 746 |
| 5-Feb | 747 | 748 | 748 | 748 | 749 | 749 | 749 | 750 | 751 | 751 | 751 | 752 | 752 | 751 | 751 | 752 | 752 | 752 | 752 | 752 | 752 | 752 | 752 | 752 | 752 | 752 | 752 | 751 |
| 6-Feb | 752 | 752 | 752 | 752 | 752 | 752 | 752 | 752 | 752 | 752 | 752 | 751 | 750 | 750 | 750 | 749 | 749 | 749 | 750 | 750 | 750 | 750 | 751 | 751 | 751 | 751 | 752 | 751 |
| 7-Feb | 751 | 751 | 750 | 750 | 751 | 751 | 751 | 752 | 752 | 751 | 751 | 751 | 751 | 751 | 750 | 750 | 751 | 751 | 751 | 751 | 751 | 752 | 752 | 753 | 753 | 753 | 753 | 751 |
| 8-Feb | 753 | 753 | 753 | 753 | 754 | 754 | 754 | 754 | 755 | 755 | 756 | 756 | 755 | 755 | 755 | 755 | 755 | 755 | 755 | 755 | 755 | 755 | 755 | 755 | 755 | 755 | 755 | 755 |
| 9-Feb | 755 | 754 | 754 | 754 | 754 | 754 | 754 | 754 | 754 | 754 | 754 | 753 | 752 | 752 | 751 | 751 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 749 | 749 | 749 | 755 | 752 |
| 10-Feb | 749 | 748 | 748 | 748 | 747 | 747 | 747 | 747 | 747 | 747 | 747 | 746 | 745 | 745 | 745 | 745 | 746 | 747 | 748 | 749 | 750 | 751 | 751 | 752 | 752 | 752 | 748 | 748 |
| 11-Feb | 752 | 752 | 753 | 754 | 755 | 756 | 756 | 757 | 757 | 758 | 758 | 758 | 758 | 757 | 757 | 758 | 758 | 758 | 758 | 758 | 758 | 759 | 759 | 759 | 759 | 759 | 759 | 757 |
| 12-Feb | 759 | 759 | 758 | 759 | 759 | 759 | 760 | 759 | 758 | 758 | 758 | 758 | 757 | 756 | 755 | 755 | 754 | 754 | 754 | 754 | 753 | 753 | 753 | 752 | 752 | 752 | 760 | 758 |
| 13-Feb | 752 | 752 | 751 | 750 | 750 | 750 | 750 | 749 | 749 | 748 | 747 | 746 | 745 | 745 | 744 | 743 | 743 | 743 | 743 | 743 | 743 | 743 | 742 | 742 | 742 | 742 | 752 | 747 |
| 14-Feb | 742 | 741 | 741 | 741 | 742 | 742 | 742 | 743 | 744 | 744 | 744 | 744 | 743 | 744 | 744 | 744 | 744 | 744 | 744 | 745 | 745 | 745 | 745 | 745 | 745 | 745 | 745 | 743 |
| 15-Feb | 748 | 748 | 748 | 748 | 745 | 746 | 746 | 746 | 746 | 747 | 747 | 746 | 746 | 745 | 744 | 744 | 744 | 744 | 744 | 744 | 743 | 744 | 744 | 744 | 744 | 744 | 747 | 745 |
| 16-Feb | 744 | 744 | 745 | 745 | 746 | 746 | 747 | 748 | 749 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 751 | 750 | 750 | 751 | 751 | 751 | 751 | 749 |
| 17-Feb | 751 | 751 | 750 | 750 | 750 | 750 | 750 | 751 | 751 | 750 | 750 | 750 | 749 | 748 | 747 | 747 | 747 | 747 | 747 | 747 | 747 | 747 | 747 | 747 | 748 | 748 | 751 | 749 |
| 18-Feb | 747 | 748 | 747 | 747 | 747 | 748 | 748 | 748 | 749 | 749 | 749 | 748 | 747 | 747 | 747 | 747 | 747 | 747 | 747 | 747 | 747 | 747 | 747 | 747 | 747 | 747 | 749 | 748 |
| 19-Feb | 747 | 747 | 747 | 747 | 747 | 747 | 747 | 747 | 747 | 747 | 748 | 748 | 747 | 747 | 747 | 747 | 747 | 748 | 748 | 748 | 749 | 748 | 748 | 748 | 748 | 748 | 749 | 747 |
| 20-Feb | 749 | 750 | 751 | 751 | 750 | 750 | 750 | 751 | 750 | 750 | 750 | 749 | 748 | 747 | 745 | 745 | 744 | 744 | 743 | 743 | 742 | 742 | 741 | 740 | 740 | 740 | 751 | 747 |
| 21-Feb | 739 | 738 | 738 | 738 | 739 | 740 | 740 | 741 | 742 | 742 | 743 | 743 | 743 | 742 | 742 | 742 | 742 | 741 | 742 | 742 | 742 | 741 | 741 | 741 | 741 | 741 | 743 | 741 |
| 22-Feb | 740 | 740 | 739 | 738 | 738 | 737 | 737 | 737 | 736 | 736 | 735 | 735 | 734 | 733 | 732 | 731 | 731 | 731 | 731 | 732 | 732 | 733 | 733 | 733 | 733 | 733 | 740 | 735 |
| 23-Feb | 732 | 733 | 732 | 731 | 732 | 731 | 730 | 730 | 729 | 728 | 728 | 727 | 726 | 725 | 726 | 726 | 726 | 727 | 727 | 728 | 730 | 731 | 733 | 733 | 733 | 733 | 733 | 729 |
| 24-Feb | 734 | 735 | 736 | 736 | 737 | 738 | 739 | 741 | 742 | 743 | 744 | 745 | 745 | 745 | 745 | 746 | 746 | 747 | 748 | 748 | 749 | 749 | 749 | 749 | 749 | 749 | 749 | 743 |
| 25-Feb | 749 | 749 | 750 | 750 | 750 | 750 | 751 | 752 | 752 | 752 | 753 | 753 | 752 | 752 | 752 | 751 | 751 | 751 | 751 | 751 | 751 | 751 | 751 | 751 | 751 | 751 | 753 | 751 |
| 26-Feb | 750 | 751 | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 749 | 748 | 747 | 746 | 746 | 746 | 746 | 746 | 746 | 747 | 747 | 748 | 748 | 749 | 749 | 749 | 749 | 751 | 748 |
| 27-Feb | 749 | 750 | 750 | 750 | 751 | 752 | 753 | 753 | 754 | 755 | 755 | 754 | 754 | 754 | 754 | 754 | 754 | 754 | 754 | 755 | 755 | 755 | 755 | 755 | 755 | 755 | 755 | 753 |
| 28-Feb | 754 | 754 | 754 | 754 | 753 | 753 | 753 | 752 | 752 | 751 | 751 | 750 | 748 | 747 | 746 | 745 | 744 | 743 | 743 | 742 | 741 | 741 | 740 | 739 | 739 | 739 | 754 | 748 |
| 29-Feb | 737 | 737 | 737 | 738 | 738 | 738 | 739 | 739 | 739 | 739 | 739 | 738 | 738 | 737 | 737 | 737 | 737 | 738 | 739 | 739 | 740 | 741 | 741 | 741 | 741 | 741 | 741 | 738 |
|  | | | | | | | | | | | | | | | | | | | | | | | | Maximum Hour//Monthly Average | | 780 | 747 | |
| | | | | | | | | | | | | | | | | | | | | | | | | Total Hours in Month | | 696 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | Valid Hours//Percent Data Captured | | 696 | 100.0% | |

Meteorological Report

The Doe Run Company

Precipitation

Site Name: Rivermines

Average Interval: 01 Hour
Sampling Frequency: 01 Second

| 2012 Day | Hour | | | | | | | | | | | | | | | | | | | | | | | | 24 Hour | | |
|---|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|---|---------|--------------------|--------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | Max | Total | |
| 1-Feb | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2-Feb | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3-Feb | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.01 | 0.00 | 0.01 | 0.01 | 0.01 | 0.24 | 0.24 | 0.33 |
| 4-Feb | 0.08 | 0.17 | 0.11 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.17 |
| 5-Feb | 0.00 | 0.02 | 0.02 | 0.02 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| 6-Feb | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| 7-Feb | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.04 | 0.02 | 0.01 | 0.04 | 0.08 |
| 8-Feb | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| 9-Feb | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10-Feb | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.01 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| 11-Feb | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12-Feb | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 13-Feb | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 14-Feb | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.16 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.16 |
| 15-Feb | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.06 | 0.01 | 0.04 | 0.05 | 0.01 | 0.00 | 0.00 | 0.00 | 0.02 | 0.04 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 |
| 16-Feb | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| 17-Feb | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 18-Feb | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 19-Feb | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20-Feb | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 |
| 21-Feb | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 22-Feb | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 23-Feb | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 24-Feb | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 25-Feb | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 26-Feb | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 27-Feb | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 28-Feb | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.01 |
| 29-Feb | 0.00 | 0.00 | 0.30 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.30 | 0.34 |
|  | | | | | | | | | | | | | | | | | | | | | | | | Maximum Hour//Monthly Total Total Hours In Month Valid Hours//Percent Data Captured | | 0.30 696 696 | 1.84 100.0% |